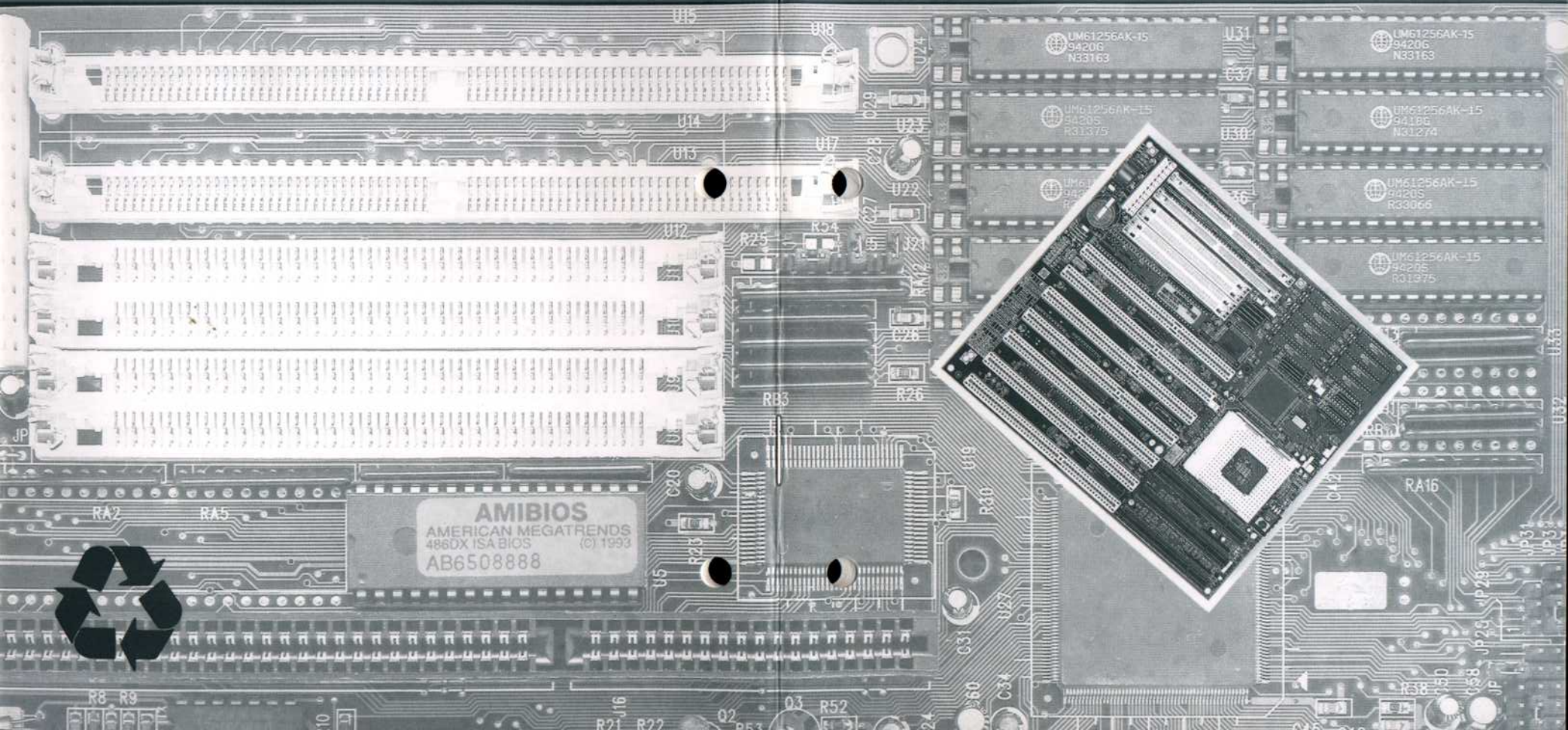
80486
Motherboard
User's Guide

TRUE "Green"

ALL *Green* Features FULLY Supported



CAUTION:

1. **Please SHORT JP1 pin 2-3 before using your system mainboard. Manufacture default setting is on pin 3-4.**

2. In GREEN CPU inactive mode system will stop DOS timer. To update DOS timer, please using Microsoft POWER. EXE to put :
   DEVICE = POWER. EXE STD
   in your config.sys

3. Please check your Intel CPU type detected by BIOS in start up screen:
   If Intel CPU detected DX4 - S, 80486DX2-S , 80486DX-S, or 80486SX-S jumper must be set as DX-SL CPU; if Intel CPU 80486DX, 80486DX2 or 80486SX jumper must be set as DX/DX2 CPU.

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About This Guide

This guide contains instructions for configuring and installing the 80486 mainboard.

- Chapter 1, Introduction, acquaints you with the special features of the 80486 deep green mainboard.
- Chapter 2, Hardware Configuration, gives information on configuring memory and setting the mainboard's jumpers. Brief sections on installing memory is also included.
- Chapter 3, Mainboard Installation, is an overview of how to install the mainboard in a system.
- Chapter 4, BIOS Setup, describes how to run the BIOS setup program once the mainboard is installed.

Static Electricity Precautions

Static electricity can easily damage your 80486 mainboard. Observing a few basic precautions can help you safeguard against damage that could result in expensive repairs. Follow the measures bellow to protect your equipment from static discharge:

- Keep the mainboard and other system components in their anti-static packaging until you are ready to install them.

- Touch a grounded surface before you remove any system component from its protective anti-static packaging. A grounded surface within easy reach is the expansion slot covers at the rear of the system case, or any other unpainted portion of the system chassis.

- During configuration and installation, touch a grounded surface frequently to discharge any static electric charge that may build up in your body. Another option is to wear a grounding wrist strap.

- When handling a mainboard or an adapter card, avoid touching its components. Handle the mainboard and adapter cards either by the edges or by the mounting bracket that attaches to the slot opening in the case.

Chapter 1
Introduction

The 80486 Deep Green mainboard is a 32-bit high performance system board. This mainboard is not only compatible with IBM AT system but also provides power-saving features that allows the user to program the timer.

The 80486 Deep Green mainboard is configured with many of 486-base microprocessor:

- Intel P24T
- Intel P24D
- Intel 80486DX4 (P24C)
- Intel 80486DX2/DX/SX-SL
- Intel 80486DX2 / DX / SX
- Cyrix CX486DX2 / DX/S
- AMD AM486DXLT / DX2 / DX
- UMC U5

The 80486 Deep Green mainboard features the capability of on-board power-management that allows the user to assign system clock rates, hard disk power saving and display power saving when enter doze mode, suspend mode or inactive mode.

Key Features

The advanced features of the 80486 Deep Green Mainboard include:

- Support microprocessor running at 25/33/40/50/66/75/100 MHz
  - -Intel P24T
  - -Intel P24D
  - -Intel 80486DX4(P24C)
  - -Intel 80486DX2/DX/SX-SL
  - -Intel 80486DX2/DX/SX
  - -Cyrix CX486DX2/DX/S
  - -AMD AM486DXLT/DX2/DX
  - -UMC U5
- L1 write back or write through cache.
- L2 write back policy for high performance.
- Flexible cache RAM size 64/128/256/512/1024KB in two banks or one bank with 16 bytes line size.
- DRAM auto-dectection / banking.
- Four banks of DRAM with memory size up to 64 MB using combinations of 256K, 1M, 2M, 4M, 8M, 16M, 32MB, 64MB, SIMM modules.
- Providing green PC power management.
- Level 2 cache power saving.
- Four power management modes for SMM (system management mode) CPU: On, Standby, Inactive, Off
  Standard mode: Either put CPU in stop grant state or scaling CPU and system clock.
  Inactive mode: Stop CPU clock.
- Fully support Microsoft APM (advance power management).
- Providing flash ROM support.
- Seven 16-bit I/O slots (including three 32-bit VESA master Local Bus Slots).
- On-board CR2032 3.0 Volt lithium battery.
- 237pin ZIF socket
- 3.3 volt for Low Voltage CPU.

Unpacking the Mainboard

The 80486 Mainboard comes packed in a sturdy cardboard shipping carton. The carton contains:

- The 80486 Mainboard
- This User's Guide

Note: Do not remove the mainboard from its original packing until you are ready to install it.

The 80486 mainboard is easily damaged by static electricity. Observe the following precautions while unpacking and installing the mainboard.

1. Touch an unpainted area of the system chassis before handling the mainboard or any component. Doing so discharges the static charge your body may have built.

2. Remove the mainboard from its anti-static wrapping and place it on a grounded surface, component side up.

3. Inspect the mainboard for damage. Shipping may have loosened integrated circuits from their sockets.If any intergrated circuit appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board, or items are missing, contact your dealer immediately.

Mainboard Components

This section gives a brief description of key components on the mainboard. Refer to Figure 1-1 for component locations.

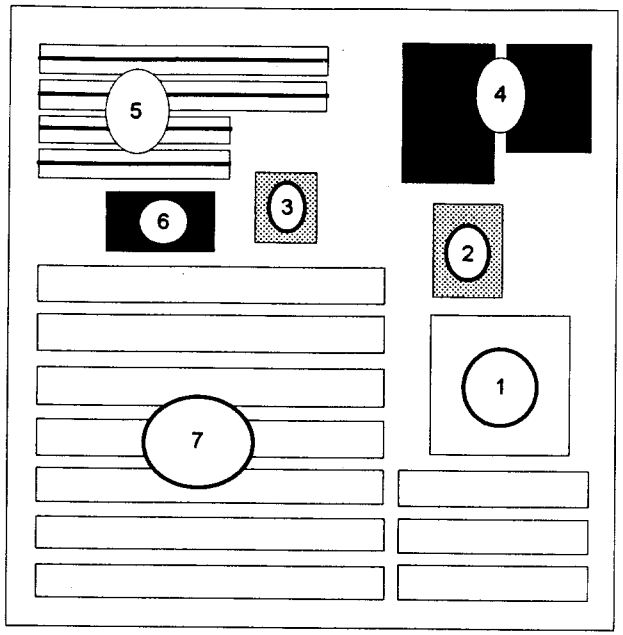


Figure 1-1. Key Components of the 80486 Mainboard

1. **System microprocessor**
   The system microprocessor is a high-performance 32-bit 80486SX, 80486DX, 80486DX-2, 80486DX-4, Cyrix 486DX2, 486DLX, 486S, AMD AMDXLT, AM486DX2, AM486DX and UMC U5 microprocessor. The 80486 microprocessor is available in seven different clock speeds: 25MHz, 33MHz, 40MHz, 50HMz, 66MHz, 75MHz, or 100MHz.
2. **Integrated System Controller (ISC)**
   The chip contains AT bus control logic, data bus conversion logic, CPU reset logic, clock generating for CPU, keyboard and timer, DMA/refresh logic, peripheral interface logic, page mode DRAM controller, and direct-mapped cache controller with write-back operation.
3. **Chips Integrated Peripherals Controller (IPC)**
   The Chips integrated peripherals controller provides all of the standard peripherals required for system board implementation except the keyboard interface controller. The Chips offers 7 DMA channels, 13 interrupt request channels, 2 timer/counter channels, and a real-time clock.
4. **Cache Memory**
   The on-board cache memory consists of eight SRAM (Static Random Access Memory) chips that contain the cached code and data.
   The cache tag subsystem consists of one SRAM chip that registers the address of the cache data.
5. **Main Memory**
   Four 30pin and two 72pin SIMM sockets are provided for 256k, 1MB, 2MB, 4MB, 8MB, 16MB, 32MB and 64MB Memory can be configured from 1MB to 64 MB.
6. **System BIOS**
   The AWARD BIOS is included in this ROM chip. The BIOS lets you control the speed of system, shadow RAM and cache functions by setting up BIOS system.
7. **Expansion slots**
   Seven standard 16-bit ISA bus expansion slots including three 32-bit MASTER Local Bus slots are provided on the mainboard.

Cache overview

A special feature of the 80486 mainboard is a built-in direct-mapped cache controller with write-back operation and support for 64KB to 1024KB cache memory with 16 bytes cache line size.

The cache capabilities of the 80486 mainboard significantly improve the performance of your software applications. Cache works by copying your most recently accessed data and placing it in an area of high speed memory called SRAM. Cache SRAM is positioned between main memory DRAM and then from SRAM to the CPU. The CPU then accesses data in and out of the SRAM at a very high speed, allowing your applications to run much faster.

Since most program executions are sequential and repetitive, the likelihood is great that the CPU will find data already stored in cache. If the data is already in cache, a **cache hit** results. If the CPU must go to main memory DRAM or your floppy disk to access the data, then a **cache miss** occurs.

The 80486 mainboard's built-in cache controller offers several features that enhance system performance during **cache hit** and **cache miss** cycles. A Page DRAM memory enhances performance during **read miss** cycles.

Chapter 2
Hardware Configuration

Before you install the 80486 mainboard into the system chassis, you may find it convenient to first configure the mainboard's hardware. This chapter describes how to set the mainboard jumpers for cache memory and display type, and how to install a math coprocessor and memory modules.

Power Precautions

Before you begin configuration, make sure you are working with an unplugged mainboard. Many components are powered by low-voltage current, but there still may be a dangerous electric current coming from the leads and power supply. You should take the following precautions:

- Turn off the mainboard, and unplug the power cord before you begin.
- Unplug all cables that connect the mainboard to any external devices.

Jumper Settings

You configure hardware options by setting jumper switches on the mainboard. Jumper switches are rows of small pins on the mainboard that you can set by using a jumper cap.

Set a jumper switch as follows:

- Short a jumper switch by placing the plastic jumper cap over two pins of the jumper.
- Open a jumper switch by removing the jumper cap.

Note: When you open a jumper, attach the plastic jumper cap to one of the pins so you won't lose it.

Symbols:

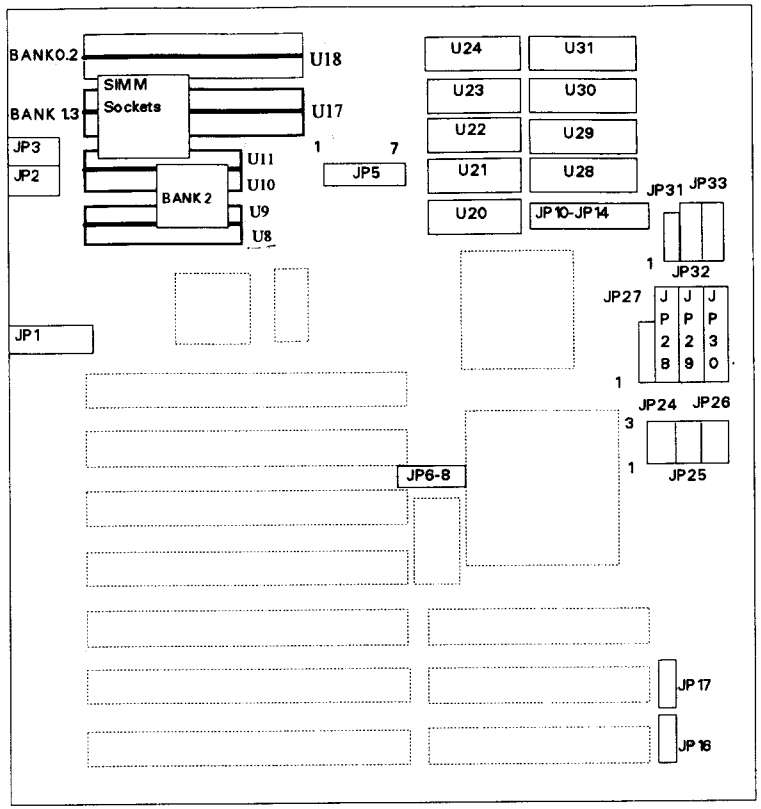
For setting Multi-pin jumpers, the symbols below are used:

- **1 - 2** means to Short with a jumper cap in pin 1 and pin 2.
- **2 - 3** means to Short with a jumper cap in pin 2 and pin 3 .

For setting 2-pin jumpers, the following symbols are used:

- The jumper is Shorted when the jumper cap is placed over the two pins of the jumper.
- The jumper is Open when the jumper cap is removed from the jumper.
- The jumper is Off when the jumper cap is removed from the jumper.

Jumper and Socket Locations



JP27~JP30,JP32,JP33 - CPU Selectors

Jumpers JP27~JP30,JP32,JP33 configure the mainboard to accept different CPUs.

CPU	JP27	JP28	JP29	JP30	JP32	JP33
486SX	OPEN	2-3	OPEN	OPEN	OPEN	2-3
486DX/DX2	OPEN	2-3	OPEN	OPEN	1-2	1-2,3-4
486DX4/SL	1-2,3-4	1-2	1-2	5-6	1-2	1-2,3-4
P24D	1-2,3-4	1-2,4-5	1-2,4-5	3-4,5-6	1-2	1-2,3-4
P24T	1-2,3-4	1-2	1-2	5-6	2-3	1-2,3-4
CYRIX M6	2-3,4-5	1-2,3-4,5-6	1-2,3-4,5-6	1-2,3-4,5-6	OPEN	2-3
CYRIX M7	2-3	1-2,3-4,5-6	1-2,3-4,5-6	2-3,4-5	1-2	1-2,3-4
UMC U5	OPEN	2-3	2-3	1-2	3-4	2-3
AMDXLT	OPEN	2-3	2-3	1-2	1-2,3-4	1-2,3-4

JP6~JP8 - Clock Generator setting

	JP6	JP7	JP8
25 MHZ	OFF	OFF	ON
33 MHZ	ON	ON	ON
40 MHZ	OFF	ON	ON
50 MHZ	ON	OFF	OFF

JP31 - 80486DX4 CPU Clock Multiplier Selector

	3X	2.5X	2X
JP31	OPEN	1 -2	2-3

JP5,JP10~JP14 - Cache Jumper

Cache Memory size is configured with jumpers JP5, JP10 ~ JP14.

1 BANK	JP5	JP10	JP11	JP12	JP13	JP14
512KB(128Kx8x4)	1-2,3-4,5-6	1-2	OFF	ON	ON	ON
256KB(64Kx8x4)	1-2,3-4	1-2	OFF	OFF	ON	ON
128K(32Kx8x4)	1-2	1-2	OFF	OFF	OFF	ON

2 BANKS	JP5	JP10	JP11	JP12	JP13	JP14
1024KB(128Kx8x8)	2-3,4-5,6-7	2-3	ON	ON	ON	ON
512KB(64Kx8x8)	2-3,4-5	2-3	OFF	ON	ON	ON
256KB(32Kx8x8)	2-3	2-3	OFF	OFF	ON	ON
128KB(16Kx8x8)	2-3	2-3	OFF	OFF	OFF	ON
64KB(8Kx8x8)	2-3	2-3	OFF	OFF	OFF	OFF

JP24~JP26 - CPU Power Selector

	JP24	JP25	JP26
5 VOLT	2-3	2-3	2-3
3.3 VOLT	1-2	1-2	1-2

JP23 - Suspend Switch Connector

In order to force system enter suspend mode, you can attach a push button to this connector.

JP16 - VESA clock

JP16 to be set opened - when CPU Clock <= 33 MHz.
JP16 to be set closed - when CPU Clock > 33 MHz.

	JP16
<=33MHZ	OPEN
> 33MHZ	CLOSE

JP17 - VESA Wait State

The JP17 is VESA wait state setting. 0WS to be opened; 1WS to be closed.

	JP17
0WS	OPEN
1WS	CLOSE

JP3 - Flash ROM VPP Supply Selector

The JP3 is Flash ROM Program Voltage selector. Pin 1 and 2 are shorted in 5 volt; Pin 2 and 3 are shorted in 12 volt.

5 VOLT	1 -2
12 VOLT	2-3

Memory Configuration

The DRAM sub-system contain 4 banks. Four 30-pin SIMM Socket U8 - U11 using as bank 2 ; two 72-pin SIMM Socket U17 using as bank 1 and 3 ; U18 using as bank 0 and 2 . So you can not install 30-pin SIMM if using 2 banks type DRAM on to U18 and you can install 30-pin SIMM if using 1 bank type DRAM on to U18.

U8-U11 BANK2	U18 BANK 0 , 2	U17 BANK 1 , 3
INSTALL	1 BANK TYPE DRAM OR NONE	2 BANKS TYPE DRAM OR 1 BANK TYPE DRAM OR NONE
NONE	2 BANKS TYPE DRAM OR 1 BANK TYPE DRAM OR NONE	2 BANKS TYPE DRAM OR 1 BANK TYPE DRAM OR NONE

Cache Configuration

The 80486 mainboard has a built-in cache controller. It requires external SRAM chips as tag and cache memory. The caching Scheme is direct mapping with write-back operation. The mainboard allows 1024KB cache configurations. Memory size is selected by the hardware jumpers. The BIOS automatically detects cache size.

The speed of the SRAM chips needed depends on the clock speed of the microprocessor:

- **50MHz** and above CPU requires **20ns (tag)** and **20ns (data)** SRAM chips.
- **40MHz** CPU requires **20ns (tag)** and **20ns (data)** SRAM chips
- **33MHz** CPU requires **20ns (tag)** and **20ns (data)** SRAM chips.
- **25MHz** CPU requires **20ns (tag)** and **20ns (data)** SRAM chips

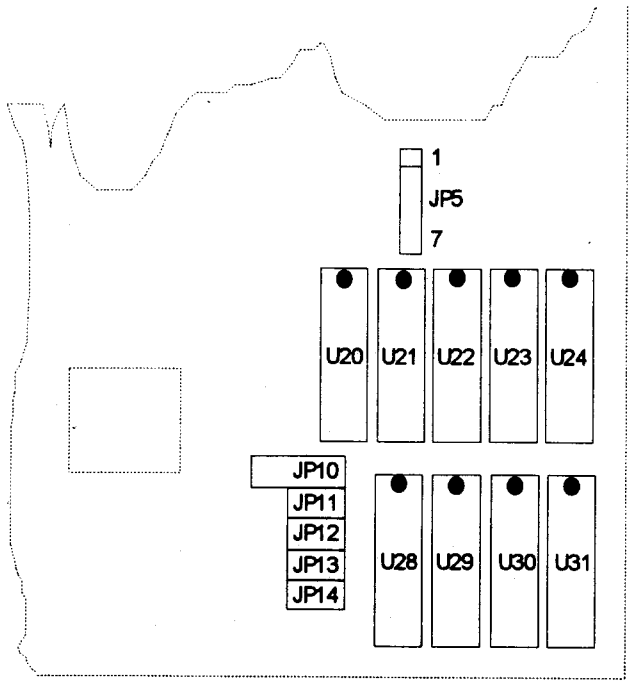
Cache Size and Memory Location

The table below describes the chip capacity and socket location reqired for each cache size configuration. You can use 8K x 8-bit, 32K x 8-bit, 64K x 8-bit, or 128K x 8-bit SRAM chips in banks 0 and 1, and in the TAG RAM sockets. Note that you cannot combine different chip capacities in banks 0 and 1.

	Cache Memory								TAG
Size	U21	U22	U23	U24	U28	U29	U30	U31	U20
64KB	8Kx8	8Kx8	8Kx8	8Kx8	8Kx8	8Kx8	8Kx8	8Kx8	8Kx8
128KB	32Kx8	32Kx8	32Kx8	32Kx8	---	---	---	---	8Kx8
256KB	32Kx8	32Kx8	32Kx8	32Kx8	32Kx8	32Kx8	32Kx8	32Kx8	32Kx8
256KB	64Kx8	64Kx8	64Kx8	64Kx8	---	---	---	---	32Kx8
512KB	64Kx8	64Kx8	64Kx8	64Kx8	64Kx8	64Kx8	64Kx8	64Kx8	32Kx8
512KB	128Kx8	128Kx8	128Kx8	128Kx8	---	---	---	---	32Kx8
1024KB	128Kx8	128Kx8	128Kx8	128Kx8	128Kx8	128Kx8	128Kx8	128Kx8	64Kx8

Cache Chip Sockets and Jumper Locations

The diagram below describes the location of the cache chip sockets and cache jumpers.



Installing Cache Chips

Install Cache chips on the mainboard as follows:

Caution: Static electricity can damage a cache chip.

1. Review the section on static electricity precautions at the beginning of this manual, and make sure that power to the mainboard is off.
2. Align the chip so that the notched corner of the chip matches the notched corner of the socket.
3. Align the pins with the socket holes.
4. Carefully press the chip into the socket.

Chapter 3
Mainboard Installation

Once you have configured the 80486 Deep Green mainboard's hardware, you are ready to install the mainboard into the system chassis. This chapter describes what you need to assemble an advanced computer system based on the 80486 mainboard.

What You Need

The following components and tools are the minimum required to build a working computer system.

Components

The following components are recommended:

- Case with standard chassis and hardware. The 80486 fits most AT compatible cases.
- Standard AT power supply.
- 8 ohm speaker
- Floppy disk drive(s) (360KB, 1.2MB, 1.44MB or 2.88MB) Hard disk drive (optional)
- Hard disk and floppy disk drive controller card
- Flat ribbon cables to connect the disk drive controller and the disk drive(s)
- Serial /parallel interface card
- AT-compatible keyboard
- Video card and Display (monochrome, CGA, EAG, or VGA)

Tools

Installing the 80486 mainboard requires the following tools:

- 1/4 -inch Nutdriver
- 3/16-inch Nutdriver

You can also use a Phillips screwdriver with a 6-inch shaft and a flat blade screwdrive instead of the nutdrivers.

Power Supply Requirements

You need a clean, steady power source to get the best performance from your system. For reliable performance, make sure your power supply provides a voltage range of 5.25 volts maximum to 4.75 volts minimum. If your area has noisy power transmission, use a line noise filter between the power source and your computer.

You must make sure the power supply can supply the total power required by all the devices in your system. Check the power requirements of the floppy disk drives, hard disk drives, and any additional boards that you will use. In a system that includes a hard disk drive installed adapter cards, use a power supply of at least 180 watts.

Installing the Mainboard

Before you begin, check the location of the mounting holes in the case and on the mainboard.

Caution; Static electricity can damage the mainboard.

Install the 80486 mainboard as follows:

1. Review the section on static electricity precautions at the beginning of this manual.
2. Place the case on an anti-static mat and remove the cover. Remove the nylon standoffs and screws for mounting the mainboard.
3. Put the front of the case to your right and the rear to your left. The mainboard occupies the section of the case nearest you; the power supply goes on the far side.
4. Align the mounting holes on the case to the mounting holes on the mainboard. Make sure you can access the keyboard connector (J1 once the board is installed.)
5. From the bottom of the mainboard, insert standoffs onto the proper holes on the board, and attach the mounting screws to the bottom of the case.

Note: Some cases do not use standoffs and mounting screws; in this case you can fasten the mainboard into the case with regular screws.

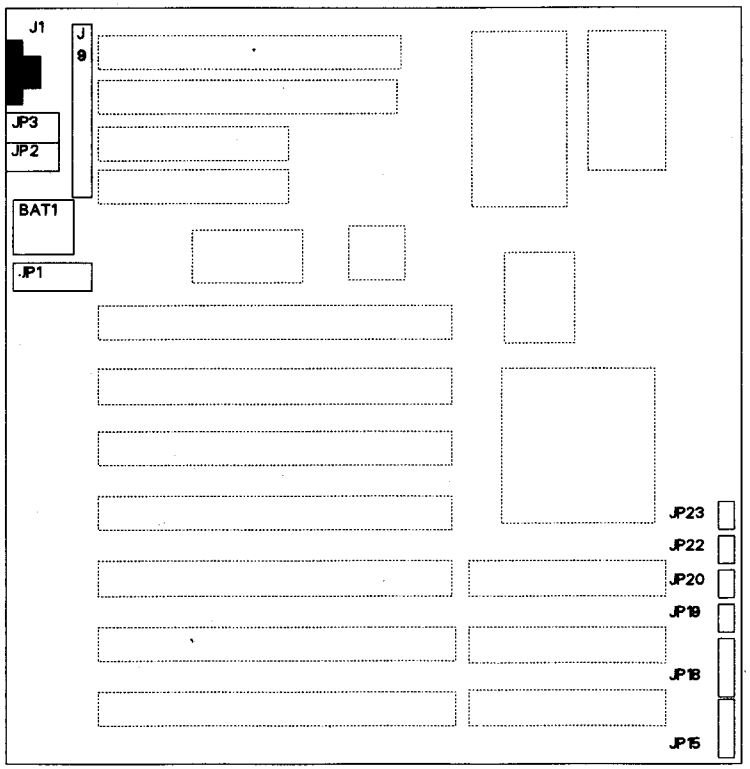
6. Place the mainboard into the case and fasten the board securely with regular screws.

Connecting the Mainboard

Once you have fastened the mainboard into the system case, the next step is to connect the internal cables. The internal cables are wire leads with plastic female connectors that attach to the connectors. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.

Note: Before making connections on the board, make sure that power to the system is turned off.

Connector Locations



Connectors

J1 - Keyboard Connector

A standard five-pin female DIN keyboard connector is located at the rear if the board (J1). Plug the jack on the keyboard cable into this connector.

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	Spare
4	Ground
5	+5V DC

J9 - Power Supply Connectors

The power supply connector has two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connectors.

Pin	Description	Pin	Description
12	+5V DC	6	Ground
11	+5V DC	5	Ground
10	+5V DC	4	-12V DC
9	-5V DC	3	+12V DC
8	Ground	2	+5V DC
7	Ground	1	Power Good

JP18 - Speaker Connector

Attach the system speaker to connector JP18.

Pin	Description
1	Data Out
2	Not Used
3	Ground
4	+5V

JP1 - External Battery

The 80486 mainboard has a **nonchargeable lithium** battery on-board; however, you can also attach an external battery to connector JP1. Using an external battery helps you conserve the on-board battery.

EXTERNAL BATTERY	1-4
INTERNAL BATTERY	2-3
CLEAR CMOS	3-4

Note 1: The factory default setting has a jumper cap on pins 3 and 4 in order to avoid losing battery power during transportation. For an installed internal battery, place a jumper cap on pins 2 and 3. When you install an external battery, remove this jumper cap.

Note 2: To clear the CMOS configuration, place a jumper cap on pins 3-4 and then place the cap back on pins 2-3 for normal operation.

JP15 - Keylock & Power LED Connector

JP15 is a keylock connector that enables and disables the keyboard and the Power-LED on the case.

Pin	Description
1	LED power
2	Not Used
3	Ground
4	Keyboard Inhibiter
5	Ground

JP19 - Turbo LED Connector

JP19 is usually connected to a Turbo Led on front of the system case. If the system board select is in Turbo mode, the indication lights during high-speed operation.

Pin	Description
1	+Anode
2	- Cathode

JP20 - Reset Switch Connector

Attach the Reset switch cable to this connector. The Reset switch restarts the system.

Setting	Description
Short	Reset
Open	Not Reset

JP22 - Turbo Switch Connector

JP22 connects to the Turbo switch, which is used to select the mainboard's clock speed.

Setting	Description
Open	Turbo Mode
Short	Low speed Mode

In addition to switching clock speed using hardware control via the turbo switch, you can also switch the clock speed using software control via keyboard commands.

The keyboard commands are as follows:

CTRL,ALT,[+]: Press these three keys simultaneously to select Turbo Mode.

CTRL,ALT,[-]: Press these three keys simultaneously to select Low Speed Mode.

Note that hardware control and software control are alternately activated. Before you can activate software control from hardware control, and vice versa, the system must be in High Speed Mode.

System Assemble Overview

After you have installed and connected the mainboard, assemble components in the following order:

1. **Power Supply:** Place the power supply so that it fits the raised tongues on the chassis floor. Insert and fasten the two screws on the back panel of the chassis. Connect the power supply to the power supply connectors, J9

2. **Disk Drives:** Slide the disk drives into the chassis. Connect a wide 34-wire ribbon cable to each disk drive; this cable will attach to an adapter card. The power supply has four cables, each with four wires. Connect these cables to the disk drives.

3. **Adapter Cards:** Insert each adapter card - Disk Controller cards, Video card, Serial/Parallel Interface card, etc. configuration instructions that comes with the card. Connect the disk drives to the Floppy Disk and Hard Disk Controller cards.

4. **Keyboard:** Connect the keyboard to its connector, J1.

5. **Display:** Connect the display cable to the Video Card, and the display's power cord into a power outlet.

6. **Case:** Slide on the case cover and fasten its screws.

Connect the power cord to the power supply and plug it into a wall outlet. Put your boot disk into drive A: and turn on the power. You will then need to run the BIOS setup program.

CHAPTER 4
BIOS SETUP

After you have configured the mainboard, and have assembled the components, you can turn on the completed system. At this point, run the software setup to ensure that the system information is correct.

The software setup of the system board is achieved through Basic Input-Output System (BIOS) programming. You use the devices (such as disk drives) are connected to your system board.

The system setup is also called CMOS setup. Normally, you need to run system setup if either the hardware is not identical with information contained in the CMOS RAM, or if the CMOS RAM has lost power.

Using the Keyboard with WinBIOS Setup

WinBIOS Setup has a built-in keyboard driver that uses simple keystroke combinations:

<Tab>

Move to the next window of field.

→,←,↑,↓

Move to the next field to the right , left , above , or below.

<Enter>

Select in the current field.

<+>

Increments a value.

<->

Decrements a value.

<ESC>

Closes the current operation and return to previous level.

<PgUp>

Returns to previous page.

<PgDn>

Advances to next page.

<Home>

Returns to the beginning of the text.

<End>

Advances to the end of the text.

<Alt><H>

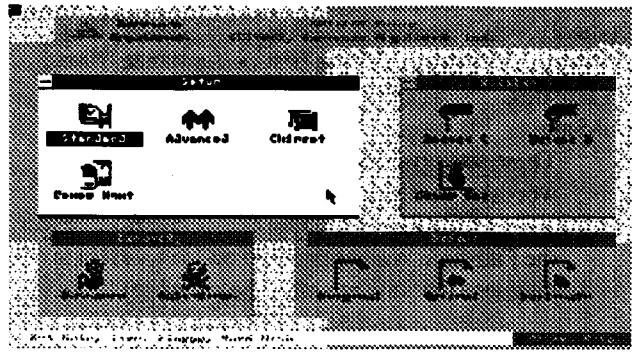
Access a help window.

<Alt><Space>

Exit WinBIOS Setup.

WinBIOS Setup Main Menu

The WinBIOS Setup main menu, shown below, is organized into four windows. Each window corresponds to a section in this chapter.



Each section contains several icons. Clicking on each icon activates a specific function. The WinBIOS Setup icons and functions are described in this chapter. The sections are:

Setup

This section has five icons that permit you to set system configuration options such as date, time, hard disk type, floppy type, and many others.

Utilities

This section has four icons that perform system functions.

Security

This section has two icons that control WinBIOS security features.

Default

This section has three icons that permit you to select a group of settings for all WinBIOS Setup options.

Default Settings

Each WinBIOS Setup option has two default settings. These settings can be applied to all WinBIOS Setup options when you select the Default section on the WinBIOS Setup main menu. The types of defaults are:

Optimal

These settings provide the best performance characteristics.

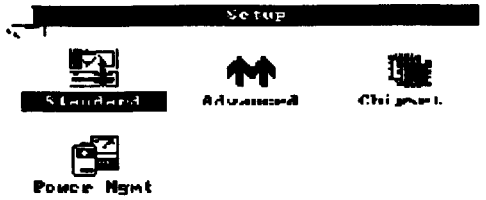
Fail-Safe

These settings are more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the Fail-Safe WinBIOS Setup options and try to diagnose the problem after the computer boots.

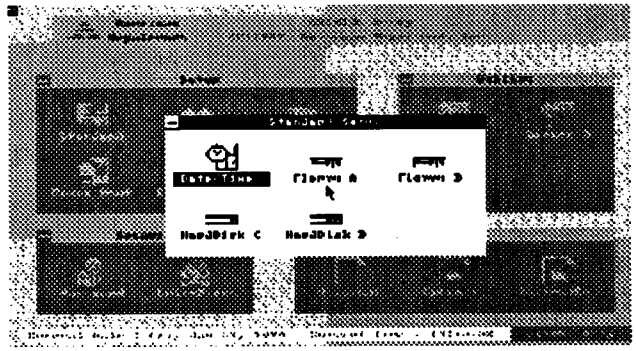
Section 1 : Setup

Standard Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu selection screen. The selection window follows.



The Standard Setup screen follows.



Date, Day and Time Configuration

Select the Standard option. Select the Date and Time icon. The current values for each category are displayed. Enter new values through the keyboard.

Hard Disk C: Type
Hard Disk D: Type

Select one of these hard disk drive icons to configure the drive named in the option. A scrollable screen that lists all valid disk drive types is displayed. Select the correct type and press <Enter>. If the hard disk drive is an IDE drive, select Detect C: or Detect D: from the Utility section of the WinBIOS Setup main menu to allow WinBIOS to automatically detect the IDE drive parameters and report them on this screen.

Using Auto Detect Hard Disk(Only for IDE Drives)

If you select Detect C: or Detect D: from the Utility section of the WinBIOS Setup main menu, WinBIOS automatically finds all IDE hard disk drive parameters. WinBIOS places the hard disk drive parameters that it finds in the Drive C: Type or Drive D: Type fields in Standard Setup.

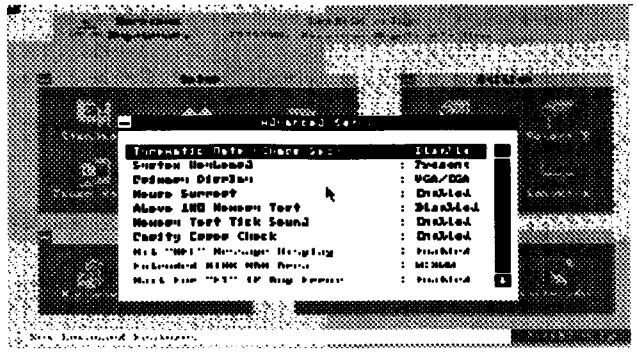
Floppy Drive A:
Floppy Drive B:

Move the cursor to these fields via ↑ and ↓ and select the floppy type. The settings are *360 KB 5¼ inch*, *1.2 MB 5¼ inch*, *720 KB 3½ inch*, *1.44 MB 3½ inch*, or *2.88 MB 3½ inch*.

Advanced Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu. The selection window is shown below.

The Advanced Setup options described in this section are the standard options as shown on the following screen.



Typematic Rate(Chars /Sec)

Typematic Rate sets the rate at which characters on the screen repeat when a key is pressed and held down. The settings are 15 , 20 , 24 , and 30 characters per second.

System Keyboard

This option does not specify if a keyboard is attached to the computer. Rather , it specifies if error message are displayed if a keyboard is not attached. This option permits you to configure workstations with no keyboards.

Primary Display

Select this icon configure the type of monitor attached to the computer.

Above 1M Memory Test

When this option is enabled. The WinBIOS memory test is performed on all system memory. When this option is disabled, the memory test is done only on the first 1MB of system memory.

Memory Test Tick Sound

This Option enables or disables the ticking sound during the memory test.

Hit "Del" Message Display

Disabling this option prevents

Hit <DEL> if you want to run Setup

from appearing when the system boots

Extended ROM RAM Area

Specify in this option if top 1KB of system programming area beginning at 639K or 0:300 in system BIOS area low memory will be used to store hard disk information.

Wait for "F1" If Any Error

If this option is enabled, WinBIOS waits for the end user to press <F1> before continue.

System Boot Up Num Lock

When ON , this option turn off Num Lock when the system is powered on.

Floppy Drive Seek At Boot

When this option is enabled. WinBIOS performs a seek command on floppy drive A: before booting the system.

System Boot Up CPU Speed

This option sets the sequence of boot drive that WinBIOS attempts to boot from after POST completes.

External Cache

This option enables secondary cache memory.

Internal Cache

This option enables CPU internal cache memory.

Password Checking

This option enables the password check option every time the system boots or the end user run Setup. If Always is chosen , a user password prompt appears every time the computer is turned on. If Setup is chosen , the password prompt appears when run Setup .

Chipset Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu. The selection window is shown below.

Base Memory Size

This option sets the size of the base system memory. The settings are *512 KB* or *640 KB*.

Auto Config Function

If Auto Config Function enables, WinBIOS will load Auto Table to config system .

Local Ready Delay Setting

Set Local Ready signal No Delay , 1T , 2T or 3T.

Signal LDEV# sample Time

Set LDEV# be sampled on T2 , T3 , T4 or T5 .

CPU ADS# Delay 1T or Not

Set ADS# delay or Not.

ROM Cacheable

Select a range of ROM address to be cacheable.

LOWA20# Select

Select LOWA20# signal generated by Chipset or KB controller.

RC Reset Select

Select Reset signal generated by Chipset or KB controller

Power Management Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu. The selection window is shown below.

A sample Power Management Setup screen is shown below.

IDE Standby Power Down Mode

This option specifies the length of time of hard disk drive inactivity that must expire before the IDE hard disk drive is placed in IDE Standby Power Mode.

Power Manager Mode Select

This option enables or disables POWER MANAGER function.

Standby Timer Value

This option specifies the length of time of Full On mode to Standby mode.

Inactive Timer Value

This option specifies the length of time of Standby mode to Inactive mode.

Monitor * Activity**

This option enables WinBIOS to monitor activity of kinds even.

Suspend /Resume Switch

This option enables or disables external Suspend / Resume switch. Use this switch you can enter Inactive mode directly.

Clock Out on Standby Mode

This option sets the CPU clock on Standby mode.

VGA Power Control

When this option is Normal , DPMS or SMART, the display will be clear in Inactive Mode.

IDE Power Control

When this option is enable , the Hard Disk will be "Spin Down" in Inactive mode

Section 2 : Utility

The following icons appear in this section:

Detect C: if drive C: is an IDE drive, the hard disk drive parameters for drive C: are automatically detected and reported to the Hard Disk Drive C: screen in Standard Setup, so you can easily configure drive C:.

Detect D: if drive D: is an IDE drive, the hard disk drive parameters for drive D: are automatically detected and reported to the Hard Disk Drive D: screen in Standard Setup, so you can easily configure drive D:

Color Set: sets the WinBIOS Setup screen colors.

Section 3 : Security

WinBIOS Password Support

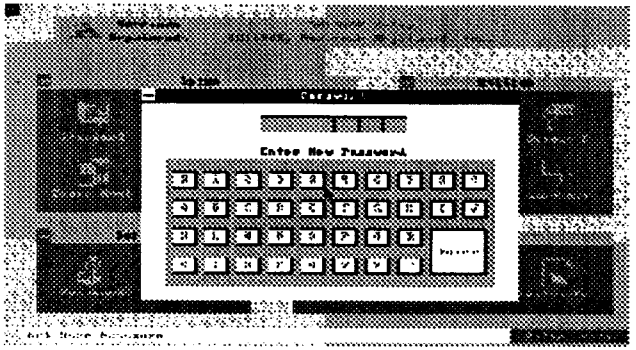
WinBIOS Setup has an optional password feature. The system can be configured so that all users must enter a password every time the system boots or when WinBIOS Setup is executed. The following screen appears when you select the password icon.

You can enter a password by:

typing the password on the keyboard,
selecting each letter via the mouse

Setting a Password

The password check option is enabled in Advanced Setup



(see page) by choosing either *Always* (the password prompt appears every time the system is powered on) or *Setup* (the password prompt appears only when WinBIOS Setup is run). The password is stored in CMOS RAM. The system asks for a password.

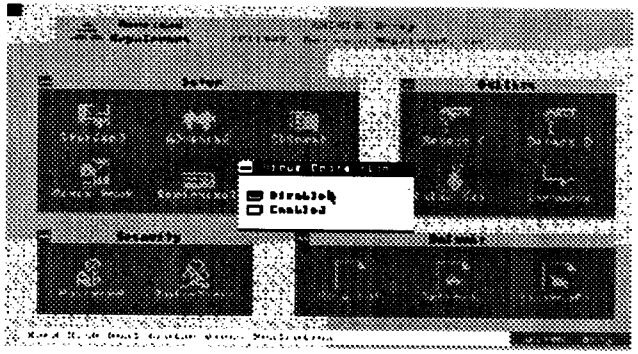
Enter a 1 - 6 character password. The password does not appear on the screen when typed. WinBIOS will ask you to retype the password. Make sure you write it down. If you forget it, you must drain CMOS RAM and reconfigure the system. WinBIOS will then display the following:

Anti-Virus

When this icon is selected from the Security section of the WinBIOS Setup main menu, WinBIOS issues a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The following screen appears when you select the Anti-Virus icon:

The settings are *Enabled* or *Disabled*. If enabled, the following appears when a write is attempted to the boot sector. You may have to type *N* several times to prevent the boot sector write.

Boot Sector Write!!!
Possible VIRUS: Continue (Y/N)? _



The following is displayed after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard Disk Drive Service:

Format!!!
Possible VIRUS: Continue (Y/N)? _

Formatting the Hard Disk Drive

You should not enable anti-virus protection when formatting a hard disk drive.

The DOS hard disk Format utility does not use INT 13h function AH = 05h to format the hard disk. It only verifies the hard disk using the INT 13h Verify function (AH = 04h). The virus warning message is not displayed during DOS hard disk drive formatting.

If the anti-virus feature is enabled, a virus warning message will be displayed when you attempt to format the hard disk drive.

If you select *Continue*, formatting proceeds as normal.

If you do not want to continue formatting, you may have to press *N* several times (depending on how many retries are performed by the upper-level software). DOS, for example, does at least five retries before the Format utility is actually aborted.

Section 4 : Default

The icons in this section permit you to select a group of settings for all WinBIOS Setup options. Not only can you use these icons to quickly set.

Original

Choose the Original icon to return to the system configuration values present in WinBIOS Setup when you first began this WinBIOS Setup session.

Optimal

You can load the optimal default settings for the WinBIOS Setup options by selecting the Optimal icon. The Optimal default settings are best-case values that should optimize system performance. If CMOS RAM is corrupted, the Optimal settings are loaded automatically.

Fail-Safe

You can load the Fail-Safe WinBIOS Setup option settings by selecting the Fail-Safe icon from the Default section of the WinBIOS Setup main menu.

The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically. system configuration parameters, you can choose a group of settings that have a better chance of working when the system is having configuration-related problems.